

REMARKS

Claims 1-4, 7, 8, 10-12, and 14-23 are pending in this application. Claims 1 and 16-23 are in independent form. Favorable reconsideration is requested.

Claims 1, 7, 8, 15, 17, and 18 were rejected under 35 U.S.C. 103(a) as being obvious from U.S. Patent 6,735,740 to Sakai in view of U.S. Patent 5,260,810 to Kanno, U.S. Patent No. 5,465,307 (Azumaya), U.S. Patent 5,953,464 to Harrington, and U.S. Patent 5,838,839 to Seki; Claims 2-4 and 10-11, as being obvious from Sakai in view of Kanno, Azumaya, Harrington, Seki, and U.S. Patent 5,392,137 to Okubo; Claim 12, as being obvious from Sakai in view of Kanno, Azuyama, Harrington, Seki, and U.S. Patent 5,729,664 to Ishikawa; Claim 14, as being obvious from Sakai in view of Kanno, Azuyama, Harrington, Seki, and U.S. Patent 5,719,967 to Sekine; Claims 16, 19, and 20, as being obvious from Sakai in view of Kanno, Azuyama, and Okubo; and Claims 21-23, as being obvious from Sakai in view of Kanno, and U.S. Patent 6,005,989 to Frederic.

Claim 1 is directed to an image processing apparatus including input means, generating means, first and second pixel density converting means, and output means. The input means inputs color image data, and the generating means generates flag data indicating an attribute of an image corresponding to the color image data from the color image data, with respect to each pixel of the image. The first pixel density converting means pixel-density converts the image data at a designated magnification, and the second pixel density converting pixel-density converts the flag data in accordance with the designated magnification. The output means makes a process of the pixel density converted image data different every pixel in accordance with the flag data and outputs the

processed image data. A pixel converting method of the first pixel density converting means is different from a pixel converting method of the second pixel density converting means. The second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the designated magnification is reduction, and performs a processing using a nearest neighboring pixel of the target pixel when the designated magnification is enlargement.

Sakai, as understood by Applicant, relates to document composite image display using categorized partial images. Sakai discusses that an image is reduced in size by changing a reduction ratio with respect to each display flag corresponding to each pixel.

Kanno, as understood by Applicant, relates to an image processing apparatus with an improved dithering scheme. Kanno discusses that a multivalued data generation process according to the characteristic of an image is performed for the relevant image information.

Azuyama, as understood by Applicant, relates to a parallel processing apparatus for recognizing an area marked with a closed loop on an original document. According to Azuyama, an area recognition apparatus can recognize a specified area even when an area designation mark intersects an image.

Harrington, as understood by Applicants, relates to intelligent scaling of images stored in low-cost image buffers. Harrington discusses that an image is classified into a smoothed area and an edge, and scaling is independently performed with respect to each of the smoothed area and the edge.

Seki, as understood by Applicant, relates to an image recognition method and discusses that plural reduction images respectively having resolutions are formed from an image, proximity correlation is obtained with respect to each resolution, and the target is cut out according to the obtained proximity correlation.

However, nothing in Sakai, Kanno, Azuyama, Harrington, and Seki, whether considered separately or in any permissible combination (if any) would teach or suggest that flag data is generated with respect to each pixel of an image and pixel density conversion for each pixel is made different from that of the flag data, as recited in Claim 1. Essentially, nothing in Sakai, Kanno, Azuyama, Harrington, and Seki, whether considered separately or in any permissible combination (if any) would disclose performing pixel resolution conversion for the flag data, as in Claim 1.

The Examiner asserts in the Office Action that Sakai discloses, in Fig. 13, performing the pixel resolution conversion for the flag data. However, Fig. 13 of Sakai merely discusses that the image reduction ratio is changed based on the flag data; at most, this only implies that resolution conversion is performed for the image (not the flag data).

Nothing has been found in Sakai, Kanno, Azuyama, Harrington, and Seki, whether considered separately or in any permissible combination (if any), that would teach or suggest that “a pixel converting method of said first pixel density converting means is different from a pixel converting method of said second pixel density converting means,” as recited in Claim 1. Moreover, nothing has been found in Sakai, Kanno, Azuyama, Harrington, and Seki, whether considered separately or in any permissible combination (if any), that would teach or suggest that “said second pixel density converting means

performs a logical arithmetic operating process of flag values of a plurality of pixels near the target pixel when the designated magnification is reduction, and performs a process using a nearest neighboring pixel of the target pixel when the designated magnification is enlargement,” as recited in Claim 1.

Accordingly, Claim 1 is seen to be patentable over Sakai, Kanno, Azuyama, Harrington, and Seki, whether considered separately or in any permissible combination (if any).

Independent Claims 17 and 18 each recite features which are similar in many relevant respects to those discussed above with respect to Claim 1 and therefore are also believed to be patentable over Sakai, Kanno, Azuyama, Harrington, and Seki for at least the reasons discussed above.

Claim 16 is directed to an image processing apparatus including input means, generating means, first and second pixel density converting means, and output means. The input means inputs color image data, and the generating means generates flag data indicating an attribute of an image corresponding to the color image data from the color image data. The flag data is indicative of a character, a figure or a mesh with respect to each pixel of the image. The first pixel density converting means pixel-density converts the image data at a designated magnification, and the second pixel density converting means pixel-density converts the flag data in accordance with the designated magnification. The output means makes a process of the pixel density converted image data different every pixel in accordance with the flag data and outputs the processed image data. The second pixel density converting means makes a converting method different in accordance

with attributes of the flag data. The second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the flag data is indicative of the character of the figure, and performs a processing using a nearest neighboring pixel of the target pixel when the flag data is indicative of the mesh.

As explained above in connection with Claim 1, Sakai, Kanno and Azuyama do not teach or suggest that pixel resolution conversion is performed for the flag data. Neither does Okubo teach or suggest this feature.

Nothing has been found in Sakai, Kanno, Azuyama, and Okubo, whether considered separately or in any permissible combination (if any) that would teach or suggest that “said pixel density converting means makes a converting method different in accordance with attributes of the flag data,” as recited in Claim 16. Moreover, Applicant submits that nothing has been found in Sakai, Kanno, Azuyama, and Okubo, whether considered separately or in any permissible combination (if any) that would teach or suggest “said second pixel density converting means performs a logical arithmetic operating process of flag values of a plurality of pixels near the target pixel if the flag data is indicative of a character or a figure, and performs a processing using a nearest neighboring pixel of the target pixel when the designated magnification if the flag data is indicative of a mesh,” as recited in Claim 16.

Accordingly, Claim 16 is seen to be patentable over Sakai, Kanno, Azuyama, and Okubo, whether considered separately or in any permissible combination (if any).

Independent Claims 19 and 20 each recite features which are similar in many relevant respects to those discussed above with respect to Claim 16 and therefore are also believed to be patentable over Sakai, Kanno, Azuyama, and Okubo for at least the reasons discussed above.

Claim 21 is directed to an image processing apparatus including input means, generating means, first and second pixel density converting means, and output means. The input means inputs color image data, and the generating means generates flag data indicating an attribute of an image corresponding to the color image data from the color image data. The first pixel density converting means pixel-density converts the image data at a designated magnification, and the second pixel density converting means pixel-density converts the flag data in accordance with the designated magnification. The output means makes a process of the pixel density converted image data different every pixel in accordance with the flag data and outputs the processed image data. The first pixel density converting means gives an offset to a start position of an output pixel position so that an output pixel value after pixel density converting the image data is generated by interpolation calculation between the neighboring adjacent pixels.

As explained above in connection with Claim 1, Sakai and Kanno do not teach or suggest that pixel resolution conversion is performed for the flag data. Neither does Frederic teach or suggest this feature.

Nothing has been found in Sakai, Kanno, and Frederic, whether considered separately or in any permissible combination (if any) that would teach or suggest that flag data is generated with respect to each pixel of an image and that pixel density conversion

of the pixel is made different from that of the flag data. Further, Sakai, Kanno and Frederic do not teach or suggest offsetting any start position of an output pixel after the pixel density conversion, as in Claim 21.

Accordingly, Claim 21 is seen to be patentable over Sakai, Kanno, and Frederic, whether considered separately or in any permissible combination (if any).

Independent Claims 22 and 23 each recite features which are similar in many relevant respects to those discussed above with respect to Claim 21 and therefore are also believed to be patentable over Sakai, Kanno, and Frederic for at least the reasons discussed above.

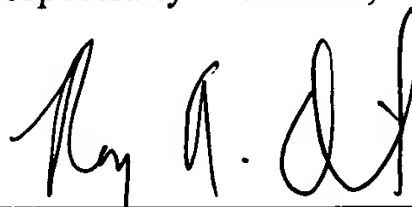
A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Ray A. DiPerna', written over a horizontal line.

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